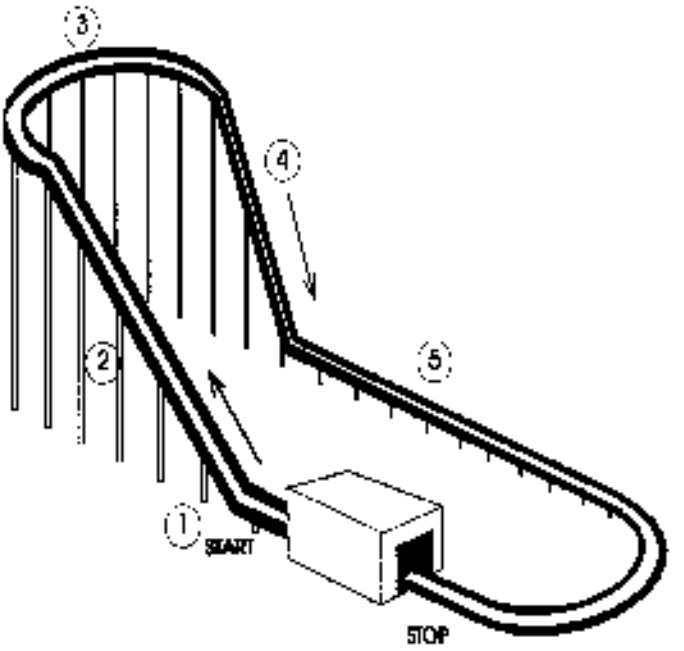
SPLASHWATER FALLS®



1. Calculate the length of the incline by determining the angle and vertical height of the incline.

2. Calculate the force needed to drag each boat up the incline with a constant velocity.

3. Compute the minimum horsepower needed to elevate each boat to the top of the incline.

4. Determine the net work done on the boat as the boat moves from the top of the first incline on the left to the top of the hill on the right.

5. Calculate the speed of each boat as it enters the pool below (assume no friction).

6. Estimate the mass of each boat and riders. Assume for each boat traveling down the "big hill", friction reduces the total mechanical energy by 10%. What is the speed of each boat as it enters the pool below and compare your answer to your answer for number 5 above?

7. A collision takes place between each boat and the water in the pool. Draw a force diagram showing the force on the boat to the water and the force on the water due to its collision with the boat.

8. Estimate the initial velocity of the water after its collision with the boat.